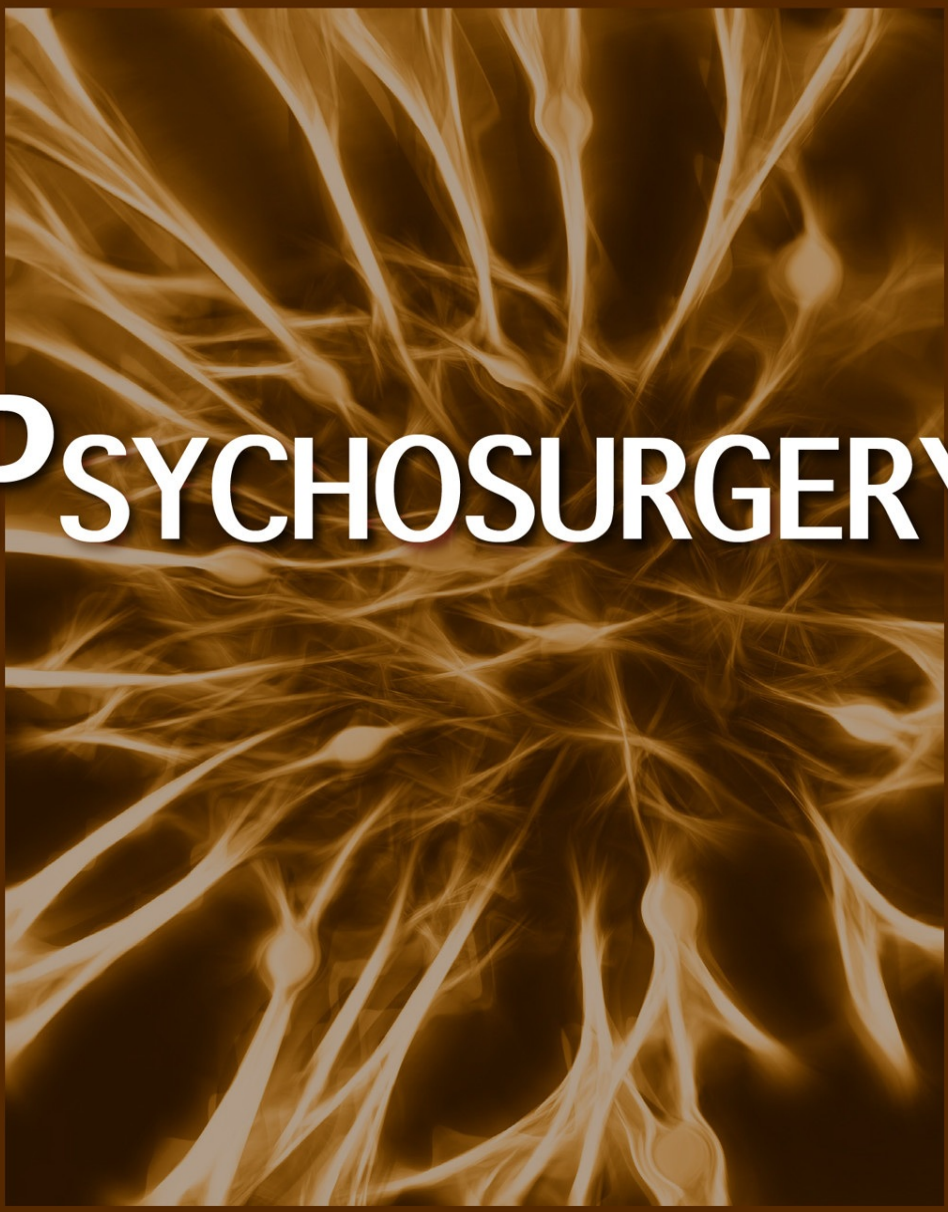
Psychotherapy Guidebook



PSYCHOSURGERY

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DEFINITION

Surgery for psychiatric illness has been defined by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research in its report to the Congress as: ... brain surgery on (1) normal brain tissues ... or (2) diseased brain tissue of an individual if the primary object of the performance of such surgery is to control, change, or affect any behavioral or emotional disturbance of such individual." (1977) By the use of the phrase "affect any behavioral or emotional disturbance" the National Commission has emphasized that any such surgical procedure must be performed solely for therapeutic purposes. In other words, these surgical approaches are methods of treatments that are reserved for those unfortunate individuals who are disabled by psychiatric illness and have been treated over a long period by generally accepted nonoperative psychiatric methodologies without success.

The term "psychosurgery" is frequently used to define this form of therapy but, unfortunately, often brings to mind the radical frontal lobotomy introduced by Egas Moniz more than forty years ago, and occasionally

conjures up fears that Psychosurgery has been or could be used for social or political purposes. The original frontal lobotomy has long since been replaced by techniques that are restricted to the placement of small, discreet lesions in carefully selected regions of the brain. Modern psychiatric surgery has evolved to such a degree that it bears no relation to the type of operation that was first introduced, and any attempt to use Psychosurgery as a form of "mind control" would be ethically indefensible and logistically impossible.

HISTORY

In 1936, the distinguished Portuguese neurologist Egas Moniz published the first clinical study of frontal lobe white matter for the treatment of psychiatric illness. This procedure was soon modified in the United States by Freeman and Watts, who sectioned the inferior portions of both frontal lobes (at about the level of the tragus). Somewhat later James Poppen further restricted the operation to the medial white matter (just anterior to the anterior horns of both lateral ventricles).

About thirty years ago, Scoville in the United States and Geoffrey Knight in England introduced the so-called orbital undercutting procedure. At about the same time, acting upon the suggestion of John Fulton, professor of physiology at Yale University Medical School, Sir Hugh Cairns at Oxford and Professor Jacques Le-Beau in Paris undertook to interrupt the white matter in

a procedure which was termed “cingulectomy.”

In 1960, Knight, as a result of his observations of orbital undercutting patients, began placing radioactive “seeds” in certain brain regions. In 1962, Foltz and White published their experiences with an approach they called “cingulumotomy,” and which has subsequently been widely employed for the treatment of psychiatric illness.

Although the “open” operations of bimedial leucotomy of Poppen and the orbital undercutting advocated by Scoville are still employed, the most widely used surgical techniques for the treatment of psychiatric patients involve the placement of small lesions (produced either by heat, cold, or radioactivity) under stereotactic control.

These surgical refinements stem directly from a search for a surgical therapy that will produce an improvement in the psychiatric status of patients so treated with a minimal risk of undesirable side effects. Furthermore, the use of stereotactic techniques has enabled the surgical approaches to be extended from the frontal lobes into other regions of the brain: the subcaudate region, the cingulum, the amygdala, the thalamus, and the hypothalamus. Finally, some surgeons have reported favorable results from combined lesions (such as those involving the amygdala, the cingulum, and the subcaudate regions).

TECHNIQUES

In the so-called open operations (bimedial leucotomy and orbital undercutting), the surgeon exposes the region he desires to interrupt through a small craniotomy. Then, under direct vision, the white matter is progressively and selectively interrupted.

Space does not permit a detailed description of all the "closed" stereotactic procedures, but a typical approach is the one that has been used at the Massachusetts General Hospital since 1962 for bilateral cingulotomies:

Under either local or general anesthesia, two burr holes allow access of special ventricular needles. Under continuous X-ray monitoring, the ventricular needles apply radiofrequency current to an area of the brain (ungulate bundle) for the production of lesions. The volume of tissue interrupted measures 2 cm in length by 1.3 cm in diameter. It is essential to interrupt the lower-most fibers of the cingulum that enter the corpus callosum.

APPLICATIONS

It cannot be too strongly emphasized that surgical therapy for psychiatric illness must be reserved for those disabled patients who have been judged failures from all other accepted forms of nonoperative

psychiatric therapy. These procedures are truly “surgical approaches to the treatment of psychiatric illness” and must never be used for social or political purposes. The same ethical and moral restraints operate in this sphere as they do in all other forms of treatment of illness. This point of view was emphasized by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research in its recommendation that such surgery “be used only to meet the health needs of individual patients.”

In general, these surgical procedures for psychiatric illness are applied primarily to individuals suffering from the so-called affective disorders, such as depression, disabling anxiety, anorexia nervosa, obsessive compulsive neurosis, and germ phobias. Patients suffering from thought disorders without emotional involvement, particularly if the symptoms are of early onset and long duration, are not so likely to benefit from psychiatric surgery. Moreover, the best results are generally to be found in those individuals who give a history of having functioned effectively in society at some period in their lives. There are several other important points in selecting patients for surgery, and the protocol to be described, which is followed at the Massachusetts General Hospital, can be used as a guide to other physicians and institutions who wish to employ this form of treatment:

First, no patient is considered for an operation unless referred by a psychiatrist who agrees to follow the patient post-operatively. Moreover, the

patient must have a sympathetic relative or close friend who agrees to be supportive in the postoperative period. The patient is then seen by the neurosurgeon who carefully and candidly explains the risks as well as the possible benefits of the surgical procedure. The patient is then interviewed by an independent psychiatrist and a neurologist, both of whom are not otherwise concerned with the care of the patient. Only if all three specialists agree that the surgery is appropriate is it then offered to the patient. Facilities must be available for extensive psychomotor testing pre-operatively and post-operatively. Finally, the patient and those around him must agree to a period of observation stretching into years after surgery.

In properly selected patients a conservative estimate of the results is as follows: 20 percent of the patients are able to function effectively in society without need for psychiatric care; another 60 percent are significantly improved but require varying degrees of psychotherapy and the administration of psychotropic medications. Finally, 20 percent of patients will not benefit from the surgery. The risk of undesirable side effects is minimal. In a series of 154 patients treated at the Massachusetts General Hospital, who were carefully studied post-operatively, there were three instances in which patients had one seizure. In no instance was there evidence of a reduction in cognitive ability nor were there any neurologic complications. (Ballantine, et al., 1977)

It is of great importance to have these operated patients followed (and treated when necessary) by the referring psychiatrists. Surgical treatment of psychiatric illness should be thought of as an adjunct to rather than a substitute for conventional psychiatric therapies. In this context, surgery for psychiatric illness can be considered as an accepted form of therapy that can be of great help in the treatment of disabled psychiatric patients.